

Claims

- [c1] 1. An electrical assembly having lead wires for connection to an external junction, said assembly comprising:
- a main housing formed from an encapsulant by over molding, the main housing having an opening therein that extends outside the main housing;
 - an electrical device enclosed by the main housing;
 - a lead wire connected to the electrical device and extending through the opening and outside the main housing;
 - a seal housing extending around the opening in the main housing and having an opening therein through which the lead wire extends;
 - a seal adapted to surround the lead wire and provide a seal around the lead wire, the seal having ribs extending outwardly from the outer surface of the seal to form an interference fit inside the opening of the seal housing;
 - and ribs extending outwardly from the seal housing and adapted to bond with the main housing, the ribs being of the same material as the main housing so as to melt and form a bond with the main housing during the over molding that forms the main housing.
- [c2] 2. The electrical assembly of claim 1 in which the seal housing is comprised of an inner segment and an outer segment, the opening in the outer segment being larger than the opening in the inner segment to form a shoulder between the segments, and the ribs on the seal provide an interference fit in the opening of the outer segment with one of the ribs abutting the shoulder.
- [c3] 3. The electrical assembly of claim 1 in which the seal is formed from an elastomer.
- [c4] 4. The electrical assembly of claim 3 in which the main housing and the seal housing are formed of a thermoplastic material.
- [c5] 5. The electrical assembly of claim 4 in which the ribs on the seal housing are shaped to have low mass extremities so that they will be melted by the encapsulant forming the main housing during the over-molding that forms the main housing.

[c6] 6. The electrical assembly of claim 2 in which in which the seal is formed from an elastomer.

[c7] 7. The electrical assembly of claim 6 in which the main housing and the seal housing are formed of a thermoplastic material.

[c8] 8. A method for producing an electrical assembly having lead wires for connection to an external junction, said method comprising:
providing an electrical device to be enclosed;
connecting a lead wire to the electrical device for connection to an external junction;
providing a seal housing having external ribs and an opening extending through the seal housing;
positioning the seal housing with the lead wire extending through the opening;
providing a seal having an opening therethrough and ribs extending outwardly from the outer surface of the seal;
positioning the seal on the lead wire so that the lead wire extends through the opening so as to provide a seal around the lead wire;
moving the seal along the lead wire until the ribs on the seal are seated in the opening in the seal housing to form an interference fit inside the opening of the seal housing;
positioning the electrical device with the seal housing, seal and lead wires assembled inside a mold of the desired configuration to form a main housing encapsulating the electrical assembly; and
forming the main housing in the mold using an encapsulant of the same material as the seal housing so that the external ribs of the seal housing will bond with the main housing to provide a permanent seal.

[c9] 9. The method of producing an electrical assembly of claim 8 in which the seal is formed from an elastomer, and the seal housing and encapsulant used to form the main housing are both of a thermoplastic material.